

## DESCRIPTION OF THE COURSES

- Course code: ELR3365
- Course title: BASIC ELECTRONICS ENGINEERING I
- Language of the lecturer: POLISH

<i>Course form</i>	<i>Lecture</i>	<i>Classes</i>	<i>Laboratory</i>	<i>Project</i>	<i>Seminar</i>
<i>Number of hours/week*</i>	2				
<i>Number of hours/semester*</i>	20				
<i>Form of the course completion</i>	examination				
<i>ECTS credits</i>	2				
<i>Total Student's Workload</i>	60				

- Level of the course (basic/advanced): *BASIC*
- Prerequisites:  
*Basic information about circuit theory (passive and active four-terminal network – description methods, signals). Effects occurring in semiconductors (physics course)*
- Name, first name and degree of the lecturer/supervisor:  
*ANDRZEJ KAŁWAK / PhD*
- Names, first names and degrees of the team's members:  
*KRZYSZTOF PODLEJSKI / PhD*
- Year: 2 Semester: 3
- Type of the course (obligatory/optional): *OBLIGATORY*
- Aims of the course (effects of the course): Student should know elements and basic electronics circuits, their parameters, characteristics and properties as well as to design of simple circuits himself.
- Form of the teaching (traditional/e-learning): *TRADITIONALE*
- Course description:

*Cognition of modern electronic elements: diode, bipolar and unipolar transistor – application to basic electronic circuits. Monolithic operating amplifiers and application of them. Operating amplifiers and their influence on circuits running. Introduction to digital technology. Logical functions: notation, basic operations. Circuit executing logical functions: electronic keys, functors, triggers. Monolithic digital circuits with low and medium integration scale (combinative and sequential circuits)*

- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
<i>1. Introduction, write-up of the course program, bibliography.... Diodes – factors, characteristics.</i>	<i>2</i>

2. Bipolar transistor – factors, characteristics, polarization, linear work circuits.	2
3. Unipolar transistor – factors, characteristics, polarization, linear work circuits.	2
4. Elements of feedback theory. Perfect operating amplifier.	2
5. Circuits with operating amplifiers.	2
6. (cont.) Circuits with operating amplifiers. Factors of real operating amplifier and their influence on circuits running..	2
7. Stabilized power supply.	2
8. Two-state transistor running – electronic keys. Functors, realization and minimalization of logical functions. Combinative circuits.	2
9. (cont.) Combinative circuits. Basic elements of sequential circuits – triggers.	2
10. (cont.) Sequential circuits	2

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:
- Project – the contents:
- Basic literature:

*Tietze U., Schenk C.: Układy półprzewodnikowe. WNT Warszawa, 1987.*

*Horowitz P., Hill W.: Sztuka elektroniki. WKŁ, Warszawa, 1997*

*Baranowski J., Czajkowski G.: Układy elektroniczne. WNT, Warszawa, 1993*

*Górecki P.: Wzmacniacze operacyjne. BTC, Warszawa, 2002*

*Nadachowski M., Kulka Z.: Analogowe układy scalone. WKŁ, Warszawa, 1990*

*Niederliński A.: Mikroprocesory, mikrokomputery, mikrosystemy. WSiP, Warszawa, 1987*

*Pieńkoś J., Turczyński J.: Układy scalone TTL w systemach cyfrowych. WKŁ Warszawa, 1980*

*Misiurewicz P.: Podstawy techniki mikroprocesorowej. WNT, Warszawa, 1991*

- Additional literature:

*Borkowski A.: Zasilanie urządzeń elektronicznych. WKŁ, Warszawa, 1990.*

*Rusek M., Pasierbiński J.: Elementy i układy elektroniczne w pytaniach i odpowiedziach. WNT, Warszawa, 1991.*

- Conditions of the course acceptance/creditation:

*Examination*

\* - depending on a system of studies